



*Recycling Council  
of Alberta*

# MSW Options Workshop: Integrating Organics and Residual Treatment/Disposal

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Workshop supported by



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# Presentation Overview

- ◆ Background
- ◆ Technical Reports
- ◆ Study Assumptions
- ◆ Evaluation Indicators



Recycling maximized ✓



Composting maximized ✓



Residuals ?

# Background

- ◆ 12 m tonnes of waste generated by Canadian households in 2002 (382 kg/person)
- ◆ 5% increase in household waste generation since 2000
- ◆ 301 kg/person (78.7%) is disposed, 81 kg/person (21.3%) diverted
- ◆ 2% increase in disposal and 1.3% increase in diversion as compared to 2000
- ◆ Nationally Canada still disposes 79% of the residential waste stream



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Residuals ?

# Background

- ◆ 50% diversion target set in late 1980's with the target date of 2000
- ◆ A few municipalities have achieved the target – National diversion 21%
- ◆ Broad range of waste management technologies available but difficult to sort through them and implement systems
- ◆ 2004 FCM releases *Solid Waste as a Resource Guide for Sustainable Communities*
- ◆ Document provides an overview of integrated solid waste information, policies and technologies – Resource tool for municipalities to evaluate their systems and make decisions on future directions

■ [www.sustainablecommunities.ca/capacity\\_building/waste/solid\\_waste\\_as\\_a\\_resource.asp](http://www.sustainablecommunities.ca/capacity_building/waste/solid_waste_as_a_resource.asp)



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Residuals ?

# Technical Reports

- ◆ Information being presented today builds on the FCM Guide by providing detailed information on:
  - Composting
  - Anaerobic Digestion
  - Sanitary Landfill
  - Bioreactor/Enhanced Landfill
  - Thermal Treatment



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Residuals ?



# Study Assumptions

- ◆ Each technology to look at 3 population sizes 20,000, 80,000 and 200,000
- ◆ Residential waste to disposal – 300 kg/person was used, the amount currently diverted 81 kg/person or 21% is already being removed
- ◆ Waste composition – three municipal waste composition summaries were used
  - North Glengarry, ON 10,600 population
  - Sudbury ON, 85,000 population
  - Calgary AB, 880,000 population



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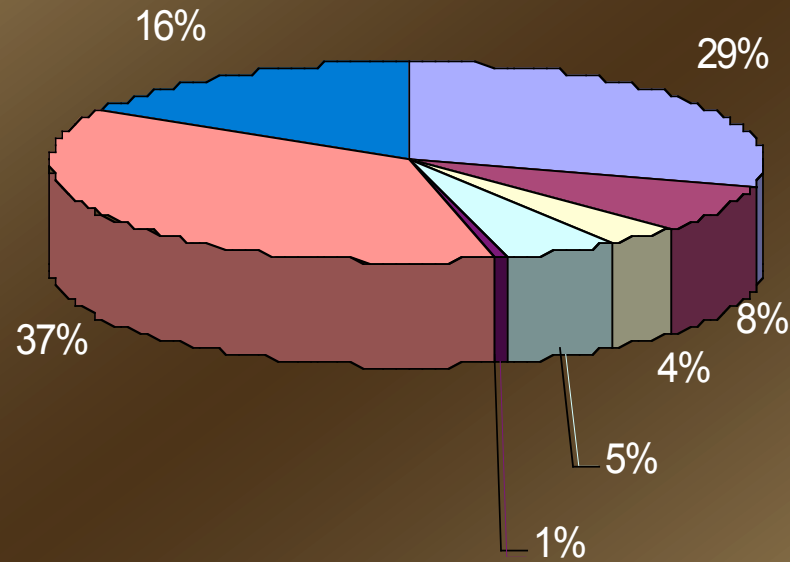
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Residuals ?

# Study Assumptions

## Average Waste Composition: North Glengarry, Sudbury, and Calgary



- Paper
- Glass

- Plastics
- HSW

- Metals
- Compostables



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Residuals ?

# Study Assumptions



[www.calgary.ca/waste](http://www.calgary.ca/waste)



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Source  
Separated  
Organics (SSO)



[www.reddeer.ca](http://www.reddeer.ca)



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Residuals ?



# Study Assumptions



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Residuals ?

# Study Assumptions

20,000 Population

Material	Baseline	Source Separated Organics		Mixed Waste Processing	
	Residual Treatment	SSO	Residual Treatment	Mixed Waste	Residual Treatment
	Tonnes				
Paper Fibres	1,721	232	1,489	842	880
Plastics	467	0	467	47	420
Metals	219	0	219	85	134
Glass	319	0	319	159	159
Household Special Wastes	48	0	48	18	30
Compostables	2,264	1613	651	1,132	1,132
Other Waste Materials	958	0	958	187	771
<b>Total Tonnes</b>	<b>5996</b>	<b>1845</b>	<b>4,151</b>	<b>2,470</b>	<b>3,526</b>



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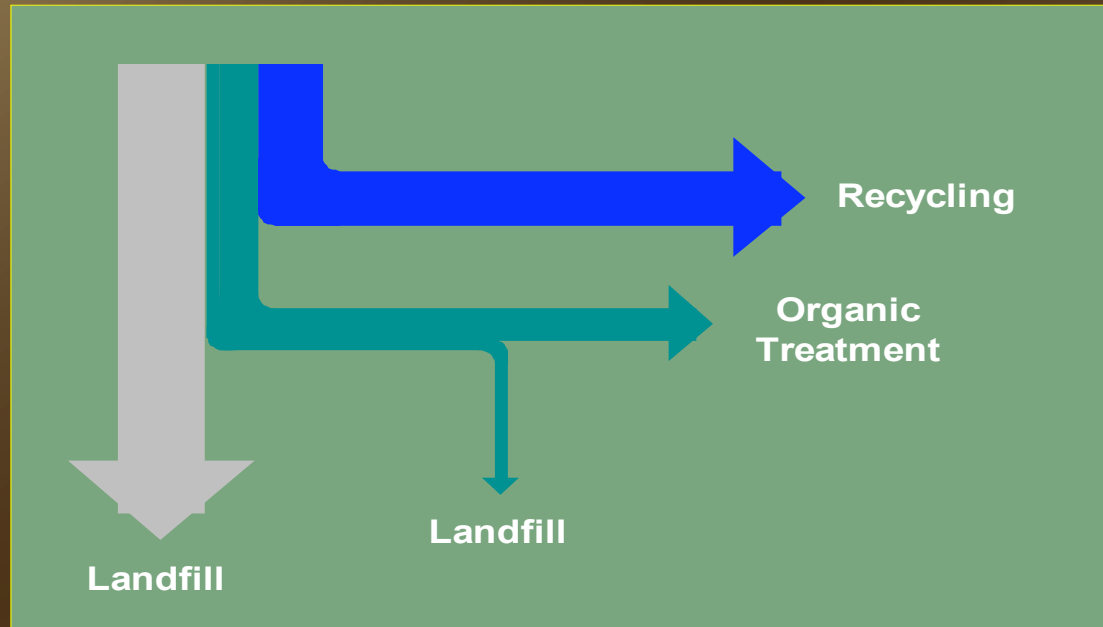
Composting maximized ✓



Residuals ?

# Study Assumptions

- ◆ Recycling and organics only:



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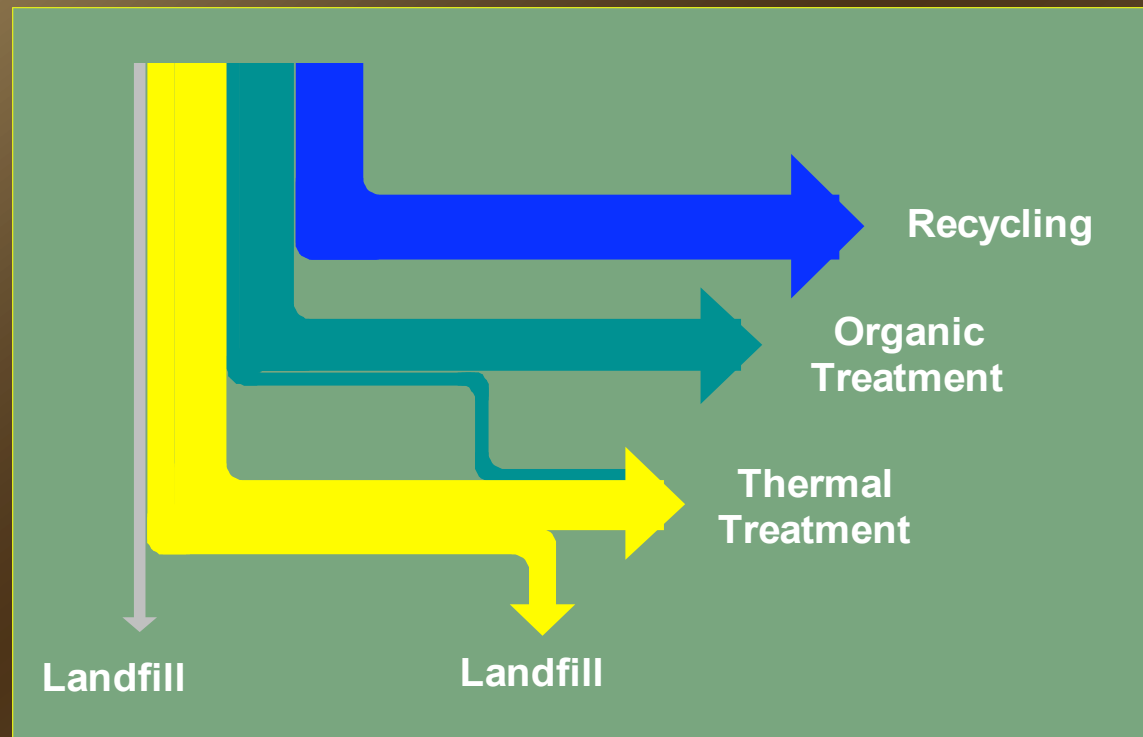
Composting maximized ✓



Residuals ?

# Study Assumptions

- ◆ Recycling and organics treatment with thermal:



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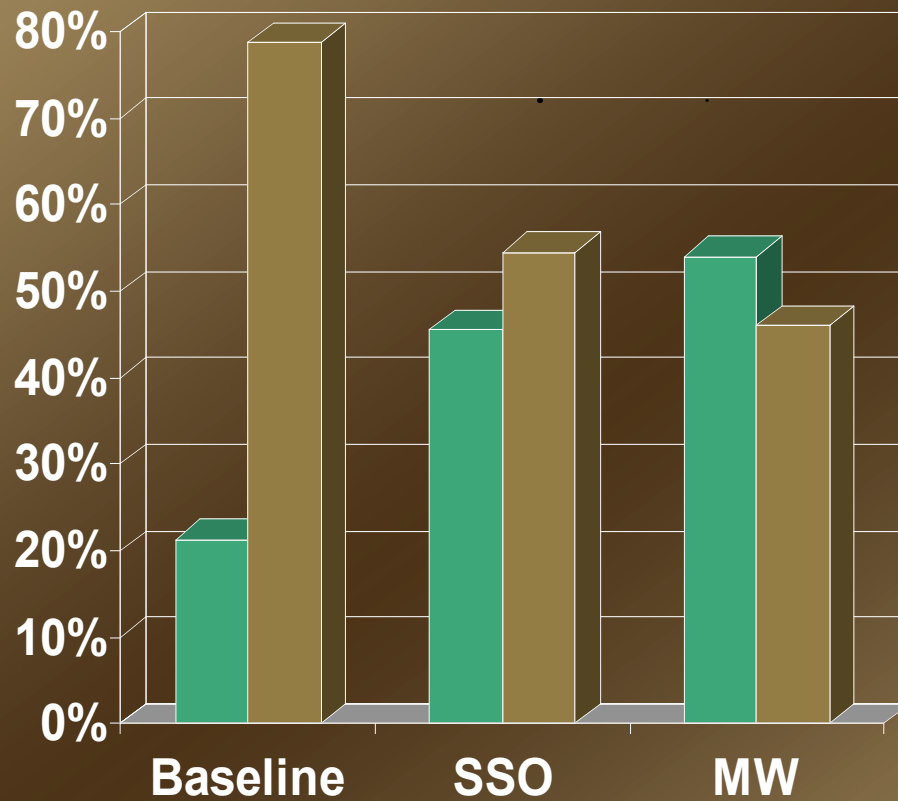


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Residuals ?

# Study Assumptions



■ Diverted  
■ Disposal

Baseline = Baseline for current diversion  
SSO = Source Separated Organics  
MW = Mixed Waste Processing



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# Study Assumptions

- ◆ The assumptions were used to arrive at a tonnage the technology option would have to handle.
- ◆ This formed the basis of the evaluation.



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Residuals ?

# Evaluation

- ◆ The following indicators were used to evaluate the five MSW management options:

Indicators	
<b>General</b>	Facility Throughput
	Major Design Features
	Commercial Status in Canada
	Approvals Required
<b>Environmental</b>	Footprint
	Landfill Airspace
	Potential Environmental Impacts
	Quality of Processed Organics
	Energy Recovery
	Greenhouse Gas Emissions



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Residuals ?

# Evaluation

- ◆ The following indicators were used to evaluate the five MSW management options:

Indicators	
<b>Social</b>	Public Acceptability
	Siting Challenges
	Land Use-Conflicts
	Employment
	Dust
	Noise
	Traffic
	Odour
<b>Economic</b>	Capital Costs
	Operating Costs
	Cost per tonne



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Residuals ?